



# GRAY'S REEF NATIONAL MARINE SANCTUARY SANCTUARY PROGRAM REPORT



REPORTING PERIOD OCTOBER -DECEMBER 2011

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## Hot Topics

### Research Area Now In Effect

Under a new regulation that went into effect 4 December 2011, the southern third of NOAA's 22-square-mile Gray's Reef National Marine Sanctuary is now a research area where scientists will be able to study the impact of human activities on the sanctuary's marine resources. Fishing and diving is prohibited in the research area off the Georgia coast, but vessels are allowed to travel across the area as long as they don't stop.

Roughly eight-square-miles and relatively free of human activity, the research area will allow scientists to design and implement habitat studies where critical variables can be controlled over long periods of time. The research area will serve as a place to study potential impacts from various activities, including bottom fishing, on the sanctuary's natural resources, as well as a place to monitor and study impacts of climate change, and natural events such as hurricanes and droughts.

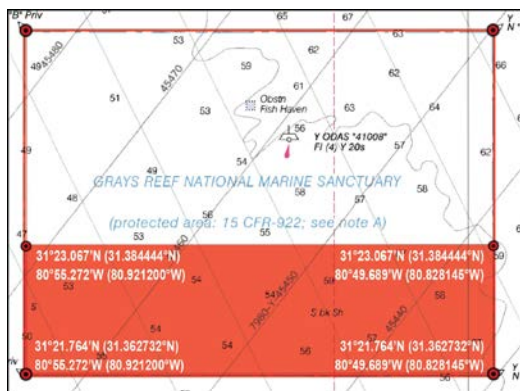
"The new research area provides a great opportunity to advance our understanding of the ocean and help ensure that special places like Gray's Reef remain healthy for generations to come," said George Sedberry, superintendent, Gray's Reef National Marine Sanctuary.

In 2009 the Gray's Reef National Marine Sanctuary Advisory Council, which integrated public input and advice from council members, made final recommendations on the research area selection criteria, boundary options and range of allowed and prohibited activities. NOAA's Office of National Marine Sanctuaries received additional public comments from September to December 2010. The boundary option chosen for the research area was favored by most sanctuary users and is expected to displace a minimal number of sanctuary visitors. Complete details of the new regulation can be found at [http://graysreef.noaa.gov/management/research/pdfs/fr\\_2011\\_26633\\_res\\_area.pdf](http://graysreef.noaa.gov/management/research/pdfs/fr_2011_26633_res_area.pdf)

## Research Area Outreach Efforts

The superintendent's statement about the research area, a map of the area and the complete regulations are available on the Gray's Reef website. In addition, a full page ad about the research area will run in the next edition of the Georgia Sport Fishing Regulations Guide. Single page sheets and laminated rack cards about the area have been given to the Georgia Department of Natural Resources' Coastal Resources Division for distribution via their creel survey crew and law enforcement officers; the same material will also be provided to the US Coast Guard. A notice about the research area is now being broadcast on the NOAA weather radio marine forecast segment; the same statement appears on the National Data Buoy Center website for the Gray's Reef data buoy ([http://www.ndbc.noaa.gov/station\\_page.php?station=41008](http://www.ndbc.noaa.gov/station_page.php?station=41008)).

Notice about the research area was sent out across all sanctuary email lists and posted on our Facebook page where it will be reposted frequently. It was also sent to all media outlets in the coastal area. Rack cards were mailed to Georgia marina operators as well as charterboat captains. Copies of all materials are available for any Sanctuary Advisory Council member who wants some to distribute. Sanctuary staff will continue to send out research area material through the spring and summer fishing season.



Several outreach items with this map of the research area including the coordinates have been sent out to the public.

## A Commentary on the Research Area by Tim Tarver, Sanctuary Advisory Council Sport Fishing Representative

The research area at Gray's Reef will answer many questions about the habitat and residential species. Migratory species may show different behavior in the area as well. It has already been noted by scientists studying the area that large residential fish are more plentiful in some locations, possibly because the area is not as popular for fishing as the northern section which has more concentrated rock outcroppings.

Grouper and snapper have been tagged and returned to the area of capture for study. Acoustic tags have allowed their location to be tracked for several months. It was surprising to learn that grouper usually stayed within 100 yards of their home and that snapper were more mobile but returned to the area frequently. There are many questions that still need to be answered in order for us to understand each species well enough to help sustain the populations. What brings them to the area? What parts of the habitat do they depend on? What factors are involved in their procreation?

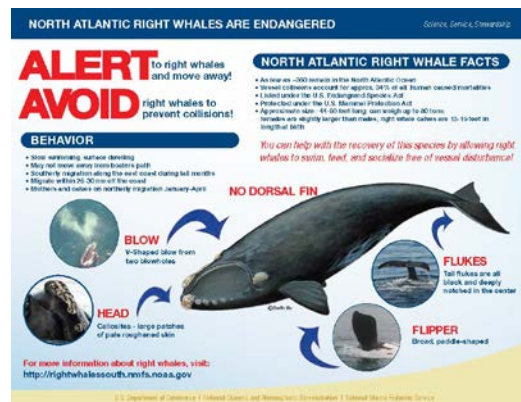
Gray's Reef has always had a viable shark population. This is usually a sign of a healthy environment. A condition report conducted by NOAA scientists recently reported that the habitat in the area is in good condition. Having a set aside zone in such a relatively untouched area will give us a better example of how the environment exists without human intervention.

Fish populations around the world are declining. Good management practices have given many countries more sustained fish populations than others. Set aside areas have been shown to increase the populations in surrounding areas as well as locally. The Gray's Reef area is unique in many ways. Our actions there will affect a large part of the southeastern coast. We have the benefit of a good environment, very capable managers, and conscientious users of the area. The habitat will benefit from our actions for many years.

# Resource Protection & Management

## Celebrating North Atlantic Right Whales

Members of the Gray's Reef staff joined the fun at the third annual Right Whale Festival held in the Jacksonville, Fla., to celebrate the return of the endangered whales to southern waters. NOAA is a sponsor of this event; NOAA Fisheries and the sanctuaries program provide materials on right whales for the public at the outreach event. The festival celebrates the annual return of North Atlantic right whales to their only known calving area in the Southeast U.S. With as few as 350 remaining, there are many local efforts to protect these critically endangered whales from extinction. This one-day festival features a beach cleanup, activities for children, music, food, and displays geared towards informing and inspiring the community about right whales, their habitat, and their conservation needs.



One of the new North Atlantic right whale info placards sent out to marinas and charterboat captains.

Gray's Reef staff mailed out 165 North Atlantic right whale awareness placards to area marina and charterboat captains. The whales migrate through Georgia's offshore water from about Nov. 15 to April 15, coming and going from the area to have their young. As of Dec. 16, six whales have been spotted offshore Georgia and there have also been some acoustic detections as well. Strikes from large and small vessels remain an issue for these highly endangered whales. The placards are designed to remind recreational boaters to be aware of whales.

Sea turtles, too, get attention from Gray's Reef as Resource Protection Coordinator Becky Shortland attended the semi-annual Georgia Sea Turtle meeting hosted by the Georgia Department of Natural Resources.

## Sanctuaries and Reserves Share Pain of Reduced Funding

Gray's Reef Superintendent George Sedberry and Southeast Regional Director Billy Causey attended the annual meeting of the National Estuarine Research Reserves and National Estuarine Research Reserve Association in Ponte Vedra, Fla. The purpose of this meeting was to develop long- and short-term plans, program strategies, and budgets for the National Estuarine Research Reserve System (NERRS). The meeting also serves to integrate the program sectors (management, research, education, coastal training, stewardship and friends/foundations) and provide relevant, targeted information and training. This is a "working/decision-making" meeting of interdisciplinary colleagues within the NERRS who are guided by similar mandates and funding sources.

Climate change was an overarching theme, with discussions of how to monitor and mitigate climate change, with NERRS as sentinel sites. Most NERRS climate change issues deal with coastal inundation. NERRS are being monitored for changes in marsh and upland vegetative zones to detect sea-level change effects, and models are being used to predict inundation effects. Like sanctuaries, NERRS are using regional alliances (e.g., Gulf of Mexico Governors Alliance) to engage other resource managers to address climate and other issues, while engaging local citizens in education and monitoring programs.

The NERRS program faces challenges in funding and reaching out to constituents that are similar to those faced by the National Marine Sanctuaries. There was considerable discussion of doing more with less, and engaging public participation through friends groups. The NERRS also face significant environmental issues that are similar to those facing sanctuaries, including climate change impacts and how to detect and mitigate them.

## Ocean Science & Exploration

### Nancy Foster Scholar

#### Lands At Gray's Reef

Gray's Reef is hosting Michelle Meadows, a graduate student at the Florida Institute of Technology, and a Nancy Foster scholar. The Dr. Nancy Foster Scholarship Program (<http://fosterscholars.noaa.gov/aboutscholarship.html>) provides financial support for outstanding scholarship and encourages independent graduate-level research in oceanography, marine biology, or maritime archaeology, particularly by women and members of minority groups. The support includes a four-to-six week research collaboration at a NOAA facility.



Tracks of two drifters deployed on a gag grouper spawning site on the shelf-edge reef at the same time in late February. The argos drifter ("AD" indicated by red dots) is affected more by surface currents, and the surface velocity program drifter ("SVP" indicated by green dots) has a drogue extending 12 meters below the surface to track with subsurface currents. Each dot represents 12 hours of drift. Gag larvae drift with the currents for 30-40 days, and settle into estuarine habitats. The drifters indicate movement of water from the spawning grounds to the inner shelf, where tidal currents and the ability to swim begin to affect movements of small gag.

Meadows is working the project "Temporal and Spatial Patterns in Reef Fish Spawning in Relation to Surface Circulation in the South Atlantic Bight" as part of her M.S. thesis research. She will use Geographic Information Systems (GIS) to study spatial and temporal patterns of reef fish spawning and larval fish movement off South Carolina, Georgia, and north Florida. Existing satellite-tracked drifter

data from known reef fish spawning sites will be used in conjunction with oceanographic data to predict where pelagic eggs are transported and larval fish are settling. ArcGIS will be used to spatially analyze the data. She is working with Superintendent George Sedberry and IT Coordinator Debra Meeks.

The final product will be a manuscript that will be submitted for publication to a scientific journal. Obtaining data on fish spawning and larval recruitment for fisheries management is high priority on the list of science needs for NOAA and Gray's Reef. Understanding settlement of larvae into habitats within National Marine Sanctuaries and nearby areas is important to properly design marine protected areas for sustainable fisheries and conservation of biodiversity. Determining larval transport from known spawning grounds in relation to surface circulation will provide managers with the knowledge necessary to identify and protect settlement and nursery habitats.

### Monitoring Fish For The Long Term

Since 1993, Gray's Reef has worked with the Marine Resources Monitoring, Assessment and Prediction (MARMAP) program to sample reef fish in the sanctuary. MARMAP is a fishery-independent reef fish monitoring program funded by NOAA Fisheries and conducted by the South Carolina Department of Natural Resources.

The MARMAP survey samples fish with baited traps and cameras at about 600 sites per year, from North Carolina to Florida. MARMAP sampled 21 trap stations at Gray's Reef in 2011, including several reconnaissance sites in the proposed research area. They collected, vented, measured, and released close to 2,500 black sea bass with almost no apparent mortality. MARMAP is processing the data and will compare catches this year to previous years and to other reef sites in the region.

The MARMAP survey provides the longest time-series of fishery-independent sampling data for the region and for Gray's Reef. The sampling will enable us to detect changes in fish abundance over time and among different reefs in the region. The survey has provided considerable baseline data for the Gray's Reef research area, prior to designation.

## **Outreach & Education**

### **Teaching the Teachers**

Gray's Reef staff supported and participated in a joint meeting of the South Carolina Marine Educators Association and the Georgia Association of Marine Education on the Skidaway Island campus. Education Coordinator Cathy Sakas co-presented on two programs with partners that featured Women in Marine Science, a summer camp targeted to middle school girls, and a teacher workshop that addressed student learning service projects in low performing counties. Superintendent George Sedberry gave presentations on fishery issues off the coast of Georgia, including the problem of lionfish invasion and the successful management of the sustainable wreckfish fishery. Lionfish, obtained from a commercial seafood dealer, was served at a sustainable seafood dinner. Lionfish are being caught by snapper-grouper boats on hook-and-line at shelf-edge reefs (180 ft deep) off of South Carolina, and were supplied by the dealer for the conference.

About 80 university, high-school, and middle-school educators attended this event and learned about NOAA efforts research and education efforts in fisheries research, invasive species, pollution monitoring and recruitment of women to ocean sciences.

### **ROV Competition Meeting Science Learning Goals**

The Marine Advanced Technology Education (MATE) Center held its annual regional competition coordinators meetings in Monterey, Calif. Education Coordinator Cathy Sakas and Volunteer Coordinator Jody Patterson, who together run the Gray's Reef Southeast Regional MATE ROV Competition, participated to help plan the mission and tasks for 2012 and to discuss lessons learned from 2011. An afternoon was devoted solely to the evaluation component.

Kim Morris-Zarneke of the Georgia Aquarium and a long time partner of Gray's Reef, also attended. Funds from a Science, Technology, Engineering and Math (STEM) grant will allow Gray's Reef and Georgia Aquarium to co-host an ROV Building Workshop at the Aquarium in Atlanta for 20 educators next year. STEM programs are receiving higher emphasis in

Georgia schools as well as across the nation. The use of ROVs by NOAA and the sanctuary system for ocean exploration and research is a natural way for staff to provide sanctuary information and ocean stewardship messages.

### **Savannah GIS Day**

Education Coordinator Cathy Sakas manned an exhibit in the Savannah Geographic Information System Event in mid November. Over 400 students from area middle and high schools attended. The exhibit displayed posters of how Gray's Reef uses GIS to pinpoint locations of target fish and to determine the best area to designate as a research area by inclusion of desired habitats. Science, Technology, Engineering and Math or STEM is receiving higher emphasis in Georgia schools as well as across the nation. The use of GIS in NOAA and the sanctuary system to help with resource management is an excellent example of how STEM is used in real life applications. By using NOAA and sanctuaries as examples of using GIS our message that NOAA and sanctuaries in particular is a science based agency is underscored.

## **Volunteers & Community**

### **Tall Ships Sail To Savannah In May 2012**

After six years of planning, Savannah will finally become a stop for tall sailing ships racing along the Atlantic coast in May 2012. Up to 15 tall ships will dock in Savannah May 3-7 as part of the "Tall Ships Challenge 2012, Atlantic Coast" race. The schedule calls for the race to start in Jacksonville, Fla., in late April, come to Savannah, then move on to Charleston, S.C., followed by stops in Greenport, N.Y., Newport, R.I. and Massachusetts Outports before winding up in late July at Halifax and Nova Scotia Outports.

An estimated 75,000 people may attend the Savannah portion of the event. There will be opportunities for NOAA and Gray's Reef staff to participate in the race and to have outreach events in port. NOAA laboratories in Charleston and the Coastal Services Center may also be involved.

### **Partnerships**

Two Gray's Reef staff members participated in recent South Atlantic Fisheries Management Council meetings. Education Coordinator Cathy Sakas facilitated the annual meeting of the Education and Information Advisory Panel of the

South Atlantic Fisheries Management Council. She also gave a presentation on the efficacy of posting daily logs on websites written during workshops and expeditions in the Social Media Workshop that immediately followed the meeting. The Social Media Workshop was attended by area formal and informal educators. Deputy Superintendent Greg McFall participated in the Coral Advisory Panel meeting.

## Homeport

### Making NOAA Diving Ever Safer

Deputy Superintendent and Line Office Diving Officer Greg McFall attended the Diving Equipment and Marketing Association trade show in Orlando, Fla., to look for new safety related equipment for ONMS/NOS divers; several new products were identified that have the potential to increase our diving safety at sea. The meeting is also a great opportunity to network with diving professionals and McFall attended several training sessions and informational seminars to update his diving safety instructional credentials.

McFall also attended a meeting with leaders in the field of closed-circuit rebreathers to plan for the upcoming rebreather Forum 3 to be held in Orlando, Florida in May of next year. This forum, which is co-sponsored by ONMS, seeks to bring together the world's foremost leaders in the rebreather industry in the areas of manufacturing, training, safety and operations to develop best practices and safety protocols.

### Sea Days in 2011

Gray's Reef and crew were at sea for 42 days in 2011 on various cruises for receiver operations, data collection for UGA and GSU, vessel support for the Nancy Foster cruise and diving with Jeff Corwin for three days of filming about lionfish. The vessel staff is finishing out the year with receiver operations and a UGA instrumentation swap out.

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#### **LEARN MORE ABOUT YOUR SANCTUARY**

To learn more about the sanctuary please visit our web site at: <http://graysreef.noaa.gov/>.

To learn more about the Sanctuary Advisory Council please visit:  
<http://graysreef.noaa.gov/management/sac/welcome.html>

#### **The Office National Marine Sanctuaries**

The Gray's Reef National Marine Sanctuary is one of 14 marine protected areas in the National Marine Sanctuary System. The Office of National Marine Sanctuaries (ONMS) was established under the National Marine Sanctuaries Act of 1972 which authorizes the Secretary of Commerce to designate as national marine sanctuaries areas of the marine environment or Great Lakes with special national significance due to their conservation, recreational, ecological, historical, scientific, cultural, archeological, educational, or aesthetic qualities. Visit the ONMS web site at: <http://www.sanctuaries.nos.noaa.gov/>

***VISIT YOUR SANCTUARY!***

For information on visiting Gray's Reef National Marine Sanctuary please see:

<http://graysreef.noaa.gov/visit/welcome.html>

This page has information about visitor centers, sanctuary regulations, and recreation in the sanctuary, and about the sanctuary's unique resources and how you can help protect them.